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23

Number of Pages (including this page)

Date: June 23, 2005

To Examiner: Phan, Tho Gia

Location: United States Patent and Trademark Office

Fax No.: Centralized Fax Number: 1 (703) 872-9306

From: Larry G. Brown - Registration No. 45,834

Attorney's Docket No. CS22875JI023

Confirmation No. 1743

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MESSAGE:

In connection with the above-identified Patent Application, please find attached herewith the following documents:

- 1 page Transmittal Form;
- 2 page Transmittal Letter for Appeal Brief, in duplicate;
- 19 pages Appeal Brief.

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EXAMINER:
GROUP ART UNIT:
SERIAL NO.:
FILED:
INVENTOR:

Phan, Tho Gia
2821
10/631,233
July 31, 2003
LORENZO A. PONCE DE LEON ET AL.

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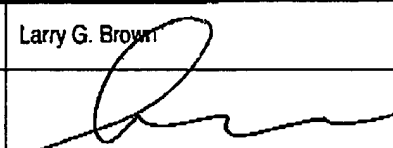
Date: June 23, 2005


Signature:

Printed Name: Silvana Wiltshire

TRANSMITTAL FORM <small>(to be used for all correspondence after initial filing)</small>	Application Number	10/631,233	
	Filing Date	July 31, 2003	
	First Named Inventor	Lorenzo A. Ponce De Leon	
	Group Art Unit	2821	
	Examiner Name	Phan, Tho Gia	
Total Number of Pages in this Submission	22	Attorney Docket Number	CS22875JI023

ENCLOSURES		(check all that apply)
<input checked="" type="checkbox"/> Fee Transmittal Letter <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/Declaration(s) <input type="checkbox"/> Extension of time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Documents <input type="checkbox"/> Response to Missing Parts/ Incomplete Application <input type="checkbox"/> Response to Missing Parts Under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-Related papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation, Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CDs	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input checked="" type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter with appropriate copies <input type="checkbox"/> Other Enclosure(s) (please identify below) <input type="checkbox"/> Response to Restriction Requirement <input type="checkbox"/> Associate Power of Attorney <input type="checkbox"/> RCE <input type="checkbox"/> Copy of Notice to File Missing Parts
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APPLICANT(S)	UNITED STATES PATENT AND TRADEMARK OFFICE		
	Lorenzo Ponce De Leon et al.	CONFIRMATION NO.:	1743
APPLN. NO.:	10/631,233	EXAMINER:	Phan, Tho Gia
FILED:	July 31, 2003	GROUP ART UNIT:	2821
DOCKET NO.	CS22875JI023		
TITLE:	PARASITIC ELEMENT AND PIFA ANTENNA STRUCTURE		

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SIR:

Enclosed please find one copy of an Appeal Brief filed on behalf of the applicants in the matter of the above entitled application. This Brief is filed pursuant to 37 CFR § 1.192 and following the Final Rejection dated April 6, 2005 and the Notice of Appeal filed by Applicants on June 2, 2005.

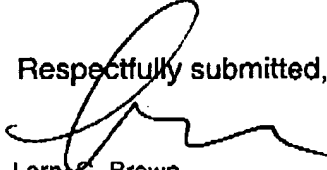
The Commissioner is authorized to charge the \$500.00 requisite fee for filing the enclosed Brief to Motorola, Inc., Deposit Account No. 502117. Any overpayment should be credit to the same Deposit Account. A duplicate copy of this Transmittal is attached herewith.

SEND CORRESPONDENCE TO:

Motorola, Inc.

Customer Number: 24273

Respectfully submitted,

By: 
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Application No. 10/631,233
Appeal Brief dated June 23, 2005

CS22875JI023

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

APPLICANT: PONCE DE LEON, ET AL. ART UNIT: 2821
APPLN. NO.: 10/631,233 EXAMINER: PHAN, THO GIA
FILED: July 31, 2003
TITLE: PARASITIC ELEMENT AND PIFA STRUCTURE

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Date: June 23, 2005

Signature:
Typed or
Printed Name: Silvana Wiltshire

APPEAL BRIEF

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P.O. Box 1450
Alexandria, VA 22313-1450

Attention: Board of Patent Appeals and Interferences

Dear Chief Administrative Patent Judge:

This Appeal Brief is in furtherance of the Notice of Appeal, transmitted via facsimile on June 2, 2005.

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06/24/2005 EAREGAY1 00000015 502117 10631233
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The fees required under 37 C.F.R. § 1.17(c) for filing this Appeal Brief have been authorized in the accompanying Transmittal Form.

This brief is being transmitted by facsimile pursuant to 37 C.F.R. § 1.6(d).

This brief contains items under the headings listed in the following Table of Contents, as set forth in 37 C.F.R. § 1.192(c).

The first inventor named in the Notice of Appeal, filed June 2, 2005, is erroneously listed as "Jyh-Han Lin." The correct first inventor for this application is "Lorenzo A. Ponce De Leon." We regret any inconvenience.

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I. REAL PARTY IN INTEREST

The real party of interest is Motorola, Inc., a Delaware corporation.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

III. STATUS OF CLAIMS

This is an appeal from the final rejection of claims 1, 4, 5, 7-10, 12-15, 18 and 19 of the above-referenced application.

A. TOTAL NUMBER OF CLAIMS IN APPLICATION

Claims in the application are: 1-16 and 18-21, for a total of 20 claims.

B. STATUS OF ALL THE CLAIMS

1. Claims allowed: none
2. Claims objected to: 2, 3, 6, 11, 16, 20 and 21
3. Claims rejected: 1, 4, 5, 7-10, 12-15, 18 and 19

C. CLAIMS ON APPEAL

The claims on appeal are: 1, 4, 5, 7-10, 12-15, 18 and 19

IV. STATUS OF AMENDMENTS

A Final Rejection was mailed on April 6, 2005 in response to an Amendment filed January 19, 2005. The Amendment and arguments were considered by the

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Examiner but were deemed not persuasive. Applicants faxed a Notice of Appeal on June 2, 2005. This Appeal Brief is submitted in support of the Notice of Appeal.

V. SUMMARY OF THE CLAIMED INVENTION

Although specification citations are inserted below in accordance with C.F.R. 1.192(c), these reference numerals and citations are merely examples of where support may be found in the specification for the terms used in this section of the brief. There is no intention to in any way suggest that the terms of the claims are limited to the examples in the specification. Although, as demonstrated by the reference numerals and citations below, the claims are fully supported by the specification as required by law, it is improper under the law to read limitations from the specification into the claims. Pointing out specification support for the claim terminology, as is done here to comply with rule 1.192(c), does not in any way limit the scope of the claims to those examples from which they find support. Nor does this exercise provide a mechanism for circumventing the law precluding reading limitations into the claims from the specification. In short, the reference numerals and specification citations are not to be construed as claim limitations or in any way used to limit the scope of the claims.

The claimed subject matter pertains to an antenna assembly (200) that can include a planar inverted "F" antenna (100) (PIFA) and a parasitic element (202) (PE). The PIFA (100) can be used for wireless operation in at least one frequency

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band (see page 4, lines 21-22), and the PE (202) can be operatively coupled to the PIFA (100) such that RF energy is radiantly coupled between the PC (202) and the PIFA (100) (see FIGs. 2-4 and page 10, lines 15-17). The PE (202) can be configured and positioned so as to further induce wireless operation of the PIFA (100) within at least one additional frequency band (see FIG. 6 and page 13, lines 14-18). In addition, the PE (202) can be ohmically isolated from ground (see FIGs. 3 and 4 and page 7, lines 2-3) and can have at least two conductors (see FIGs. 2, 8 and 9).

In one arrangement, the PE (202) can include a meandering section (808) (see FIG. 8 and page 16, lines 21-22), which can induce radiation characteristics of the PIFA (100) in an additional plurality of bands (see page 16, lines 16-19). The PE (202) can conform to a surface that is above the PIFA (100) (see FIGs. 3 and 7 and page 15, lines 5-11). Also, the PE (202) can be mounted on a surface that is separated from the PIFA (100) (see page 16, lines 9-10). This surface can be a portion of a case (704) for a wireless communication device (706) (see FIG. 7 and page 15, lines 5-11).

VI. ISSUES ON APPEAL

Whether claims 1, 4, 5, 7-10, 12-15, 18 and 19 are patentable under 35 U.S.C. 102(b) over U.S. Patent No. 6,326,921 to Egorov, et al. (Egorov).

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VII. GROUPING OF CLAIMS

For purposes of this Appeal, the Applicants present the following grouping of claims:

1. Claims 1, 4, 7-10, 12, 15 and 19 are a group, with the appeal as to the ground of rejection being based on claim 1.
2. Claims 5, 13, 14 and 18 are part of another group, with the appeal as to the ground of rejection being based on claim 5.

VIII. ARGUMENT

The recitations of Egorov do not render the claimed invention of claims 1, 4, 5, 7-10, 12-15, 18 and 19 unpatentable.

A summary of Egorov may be helpful here. Egorov discloses a low-profile antenna that has a PIFA and a meandering parasitic element. In particular, referring to FIG. 3, an antenna 300 includes a PIFA 310, a feeding pin 320 for the PIFA 310 and a ground pin 330 for connecting the PIFA to a PCB ground 340. In this arrangement, the PIFA 310, and hence, the feeding in 320 and the ground pin 330, are placed at a predetermined height with respect to the PCB ground 340. The antenna 300 further includes a meandering parasitic element (PE) 350, which is in the same plane as the PCB ground 340. Egorov also expressly states that the PE 350 is connected at one end to the PCB ground 340 (see column 5, lines 34-35).

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Egorov notes that the PE 350 creates an additional resonance, which can be adjusted so that it occurs near or adjacent to the higher resonance frequency of the PIFA 310. These two resonances can merge into a broader resonance. To achieve an even greater bandwidth, Egorov notes that the distance between the feeding pin 320 of the PIFA 310 and the PE 350 is minimized.

Egorov also describes a second exemplary embodiment shown in FIG. 4. Here, an antenna 40 is shown in which the antenna 400 is similar in structure to that of the antenna 300 of FIG. 3. In the second embodiment, however, the PE 450 is not at the same plane as the PCB ground 440. In addition, the PCB ground 440 is below the antenna 400, and hence, the PE 450. Egorov explains that “[w]hile this particular design results in smaller bandwidth than that of antenna 300, the bandwidth realized is much greater than the PIFA antenna 200, for example” (see column 6, lines 43-46). In other words, Egorov is describing that this second embodiment can affect the bandwidth of the broader resonance that is produced when the two resonances associated with the PIFA 410 and the PE 450 merge. At no time does Egorov show, explain or suggest removing the PE 450 from contact with the PCB ground 440. Moreover, Egorov does not show, explain or suggest the PE 350 conforming to a surface that is above the PIFA 310.

It is well settled that in order for a claim to be anticipated under 35 U.S.C. § 102, each and every element of the claimed invention must be disclosed in a single

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prior art reference. Orthokinetics, Inc. v. Safety Travel Chairs, Inc., 806 F.2d 1565, 1574 (Fed. Cir. 1986). Whether the reference discloses every element of the invention, and also whether the reference and the claimed invention are the same, is to be determined by considering how persons of ordinary skill in the art interpret the reference. Scripps Clink & Research Fdm. v. Genentech, Inc., 927 F.2d 1565, 1576 (Fed. Cir. 1991).

Independent claims 1, 7, 8 and 15 recite the limitation that the parasitic element is ohmically isolated from ground. On page 3 of the Final Office Action dated April 6, 2005, the Examiner argues that FIG. 4 of Egorov "...clearly disclose[s] a parasitic element 450 positioned to be operatively coupled to the PIFA 410, wherein the parasitic element is ohmically isolated from ground 440 (this would occur because the parasitic element is not at the same plane as the pcb ground, see column 6, lines 35-40)."

Applicants respectfully disagree with the Examiner's position. In describing FIG. 3 and as pointed out earlier, Egorov expressly notes that the PE 350 is connected at one end to the PCB ground 340. Although not expressly written in Egorov, it appears that such a connection is indeed shown in FIG. 4. In particular, the PCB ground 440 has been extended -- in comparison to the PCB ground 340 of FIG. 3 -- such that the PCB ground 440 is below the antenna 400, i.e., the PIFA 410 and the PE 450. The PE 450 includes a first segment, apart from its primary

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meandering section, that is in the same plane as the PCB ground 440 and is perpendicular to the PIFA 410. This first segment runs along the extended PCB ground 440. In addition, the PE 450 includes another segment that rises vertically from the first segment and the PCB ground 440 and is coupled to the meandering section of the PE 450. Clearly, either of these segments of the PE 450 is coupled to the PCB ground 440.

As further evidence of the PE 450 being coupled to ground, Egorov never mentions anything about not connecting the PE 450 to the PCB ground 440. In fact, the paragraph that describes FIG. 4 (see column 6, lines 36-46) lists the differences between the antenna 300 and the antenna 400 that can cause the operating characteristics of the antenna 400 to change from those of the antenna 300. In particular, this paragraph states that "[t]he antenna 400 is similar in structure to antenna 300 of FIG. 3" and then it recites the following differences that affect the operation of the antenna 400: (1) the PE 450 is not at the same plane as the PCB ground 440; (2) the PCB ground 440 is below the antenna 400; and (3) the differing lengths between the PIFA 310 and the PIFA 410 and between the PE 350 and the PE 450. It is axiomatic that any significant alteration - like ohmically isolating the PE 450 from the PCB ground 440 and describing how it may affect the operating characteristics of the antenna 400 - would be listed in this paragraph if such a feature was part of the structure of the antenna 400.

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Even more compelling, the primary reason for ohmically isolating the PE from the PIFA in Applicants' invention is to increase the versatility of the PE. For example, by being ohmically isolated from ground, the PE can be embedded in a plastic housing of a cellular telephone. In addition, the PE can be added to any product design that already includes a PIFA with little or no inconvenience. Also, in view of this ohmic isolation, the PE can be positioned on virtually any surface that is not a part of the PIFA without impact to the packaging shape of the product. Egorov simply does not address any of these topics. At best, Egorov merely notes that a PIFA and a meandering parasitic element 650 can be part of a cellular telephone (see FIG. 6 and column 7, lines 4-14). No other detail concerning the positioning of a PE on the various surfaces of the cellular telephone is provided in Egorov.

Based on the discussion above, Applicants submit that Egorov does not disclose each and every element of independent claims 1, 7, 8 and 15, namely, the ohmic isolation limitation. As such, Applicants contend that independent claims 1, 7, 8 and 15 are patentable over Egorov. In addition, Applicants submit that the claims that depend from these independent claims are patentable over Egorov, both in view of their dependencies on the independent claims and their own independent patentability.

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In accordance with 37 C.F.R. 1.192(c)(7), Applicants will now present arguments as to why claims 5, 13, 14 and 18 are separately patentable over the first group of claims. Each of claims 5, 13, 14 and 18 recites that the PE conforms to a surface that is above the PIFA. Egorov never shows, describes teaches or suggests the PE 350 or 450 conforming to a surface that is above the PIFA 310 or 410. By having the PIFA conform to a surface that is above a corresponding PIFA, irrespective of whether the PE is ohmically isolated from ground, the PE can be positioned, for example, on the inside surface of the housing of a cellular telephone (see FIG. 7 of the application). In fact, the PE of the current invention can be added to such as device without affecting the overall shape of the product, even if the surface to which the PE conforms is curved. None of these concepts are ever discussed in Egorov.

Conclusion

For the claims to be unpatentable under § 102(b), the prior art must disclose each and every limitation contained in the claims, and particularly, in this case, must show the PE being ohmically isolated from ground and conforming to a surface that is above the PIFA. Because Egorov fails to teach or suggest this structure or methods employing such structures, Applicants submit that the claims on appeal, namely claims 1, 4, 5, 7-10, 12-15, 18 and 19, are patentable.


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Applicants also submit that those claims objected to, claims 2, 3, 6, 11, 16, 20 and 21, are also patentable.

For the reasons set forth above, and as is apparent from a review of the above-cited references, the claims on appeal present patentable subject matter such that reversal of the rejection is appropriate.

Respectfully submitted,

By: 
Larry G. Brown June 23, 2005

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IX. CLAIMS APPENDIX

1. (Previously Presented) An antenna, comprising:
a PIFA for wireless operation within at least one frequency band; and
a parasitic element positioned to be operatively coupled to the PIFA, wherein the parasitic element is ohmically isolated from ground, and wherein RF energy is radiantly coupled between the parasitic element and the PIFA, and the parasitic element is configured and positioned so as to further induce wireless operation of the PIFA within at least one additional frequency band.
2. (Previously Presented) The antenna of claim 1, wherein the parasitic element comprises three ohmically connected arms that join at substantially right angles and that radiantly couples to at least three arms of the PIFA.
3. (Previously Presented) The antenna of claim 1, wherein the parasitic element comprises three ohmically connected arms that are arranged in a shape that generally conforms to the shape of the PIFA.
4. (Original) The antenna of claim 1, wherein the parasitic element comprises a meandering section.

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5. (Previously Presented) The antenna of claim 1, wherein the parasitic element conforms to a surface that is above the PIFA.

6. (Previously Presented) The antenna of claim 5, wherein the parasitic element is mounted on the surface, wherein the surface is between the PIFA and the parasitic element, the surface comprises at least a portion of a case of a wireless communications device.

7. (Previously Presented) A parasitic element for use with a PIFA antenna that is for wireless operation within at least one frequency band, the parasitic element comprising:

at least two conductors arranged so as to radiantly couple RF energy between the parasitic element and the PIFA antenna,

wherein the parasitic element is configured and positioned relative to the PIFA antenna so as to further induce wireless operation of the PIFA antenna within at least one additional frequency band and wherein the parasitic element is ohmically isolated from ground.

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8. (Previously Presented) A method comprising:

parasitically inducing a radiation characteristic of a PIFA antenna, that wirelessly operates within at least one frequency band, resulting in wireless operation thereof within at least one additional frequency band by radiantly coupling RF energy from the PIFA antenna to a parasitic element that is ohmically isolated from ground.

9. (Previously Presented) The method according to claim 8, wherein the parasitically inducing comprises:

positioning the parasitic element so as to be operatively coupled to the PIFA antenna so as to induce the radiantly coupling of RF energy between the PIFA antenna and the parasitic element, wherein the positioning contributes to the parasitically inducing and wherein the parasitic element comprises a conductor ohmically isolated from ground.

10. (Previously Presented) The method according to claim 9, wherein the positioning comprises mounting the parasitic element on a surface that is separated from the PIFA antenna.

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11. (Presently Presented) The method according to claim 9, wherein the parasitic element comprises three ohmically connected arms that are arranged in a shape that generally conforms to the shape of the PIFA antenna.

12. (Original) The method according to claim 9, wherein the parasitic element comprises a meandering section so as to further induce radiation characteristics of the PIFA antenna in an additional plurality of bands.

13. (Previously Presented) The method according to claim 9, wherein the parasitic element conforms to a surface that is above the PIFA antenna.

14. (Previously Presented) The method according to claim 13, wherein the parasitic element is mounted on the surface and the surface comprises at least a portion of a case of a wireless communications device.

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15. (Previously Presented) A wireless communications device,
comprising:

at least one of a receiver for wirelessly receiving transmitted signals and a
transmitter for wirelessly transmitting signals;

a PIFA antenna, electrically coupled to the at least one of a receiver and a
transmitter, for wireless operation within at least one frequency band; and

a parasitic element, positioned so as to be operatively coupled to the PIFA
antenna, for radiantly coupling RF energy between the parasitic element and the
PIFA antenna, the parasitic element being configured and positioned so as to
further induce radiation of the PIFA antenna within at least one additional frequency
band, wherein the parasitic element is ohmically isolated from ground.

16. (Previously Presented) The wireless communications device of claim
15, wherein the parasitic element comprises three ohmically connected arms that
are arranged in a shape that generally conforms to the shape of the PIFA antenna.

17. (Canceled).

18. (Previously Presented) The wireless communications device of claim
15, wherein the parasitic element conforms to a surface that is the PIFA.

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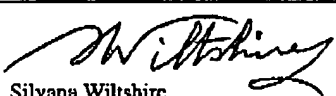
19. (Original) The wireless communications device of claim 18, wherein the surface comprises at least a portion of a case of the wireless communications device.

20. (Previously Presented) The antenna according to claim 1, wherein the PIFA is mounted above a ground plane, the PIFA having a first side facing a plane containing the ground plane, and wherein the parasitic element is located above a second side of the PIFA that is opposite the first side.

21. (Previously Presented) The antenna according to claim 6, wherein the PIFA is in contact with a first side of the surface and the parasitic element is in contact with an opposite side of the surface, the opposite side being opposite the first side.

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APPLICANT(S) Lorenzo Ponce De Leon et al. CONFIRMATION NO.: 1743
APPLN. NO.: 10/631,233 EXAMINER: Phan, Tho Gia
FILED: July 31, 2003 GROUP ART UNIT: 2821
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Date:	June 23, 2005
Signature: Typed or Printed Name:	 Silvana Wiltshire

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SIR:

Enclosed please find one copy of an Appeal Brief filed on behalf of the applicants in the matter of the above entitled application. This Brief is filed pursuant to 37 CFR § 1.192 and following the Final Rejection dated April 6, 2005 and the Notice of Appeal filed by Applicants on June 2, 2005.

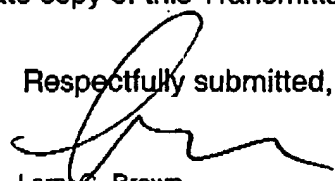
The Commissioner is authorized to charge the \$500.00 requisite fee for filing the enclosed Brief to Motorola, Inc., Deposit Account No. 502117. Any overpayment should be credit to the same Deposit Account. A duplicate copy of this Transmittal is attached herewith.

SEND CORRESPONDENCE TO:

Motorola, Inc.

Customer Number: 24273

Respectfully submitted,

By: 
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